

**Assumptions:**

- \* Streamflows were from the 05 Apr ESP run, which uses current basin conditions combined with 44 historical weather patterns (temperatures and precipitation) to produce 44 ESP hydrographs for 2005.
- \* Starting elevations are forecasted April 15, 2005 elevations from Apr 11 short-term model runs.
- \* Grand Coulee maintains a maximum pool of 1255 ft through April for drum gate maintenance. Coulee tries to meet 110,000 cfs in Apr2, and 130,000 cfs in May while not drafting below 1240 ft. In June the project refills to at 1285 ft in all years. Summer lake targets are 1284.0 ft in July and 1278 ft in August (per the BiOp).
- \* Hungry Horse operates April - May for a controlled refill by 30 June and meets minimum flow of 3250 cfs at Columbia Falls. The project drafts to 3540 ft by 31 Aug.
- \* Brownlee operates to flood control elevations, which is elevation 2077 ft (or full pool) and drafts some in July - August.
- \* Dworshak targets local flood control requirements due to snow covered area (elevation 1587.5 ft on Apr 15 and 1591.6 on Apr 30). The project targets full in June and drafts to 1534 ft by 31 Aug.
- \* Libby operates on minimum flow or VARQ flood control Apr - May, targets full in June with a minimum flow of 17,400 cfs out in June for sturgeon, based on a Tier 2 sturgeon pulse. Libby drafts to 2439 ft by 31 Aug, with a minimum bull trout flow of 7,000 cfs.

**Results:**

Priest Rapids Meets the Following Flow Objectives:

Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	Flow Objective* (kcfs)
Apr 30	34	109	110
May	32	127	130
Jun	43	130	90

\* Note: Flow objectives listed may be less than what is prescribed in the BiOp but were used for modeling.

Lower Granite Meets the Following Flow Objectives:

Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	Flow Objective* (kcfs)
Apr 30	1	56	85
May	10	78	85
Jun	5	57	73
Jul	0	32	50
Aug 15	0	28	50
Aug 31	0	27	50

Bonneville Meets Flow Objectives of 125 kcfs in Apr:

Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)
Apr 30	44	178

McNary Meets the Following Flow Objectives:

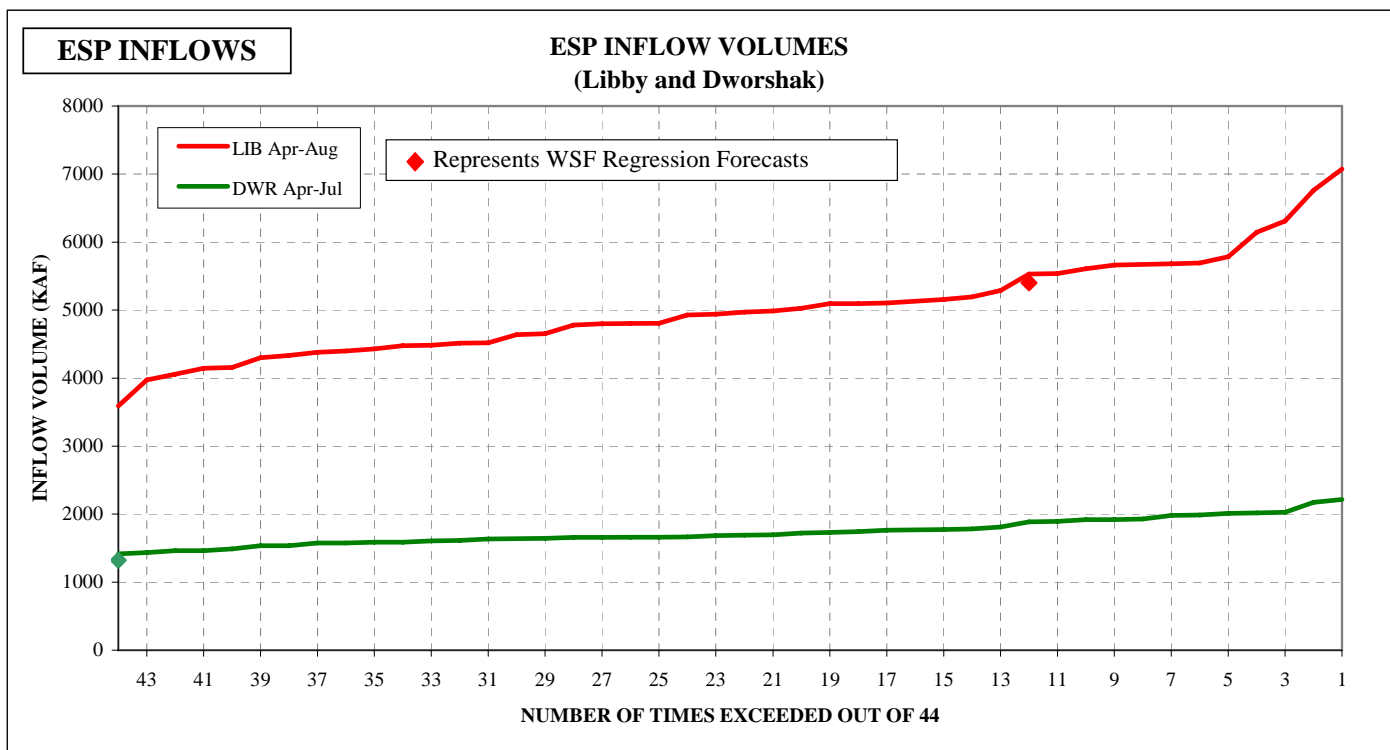
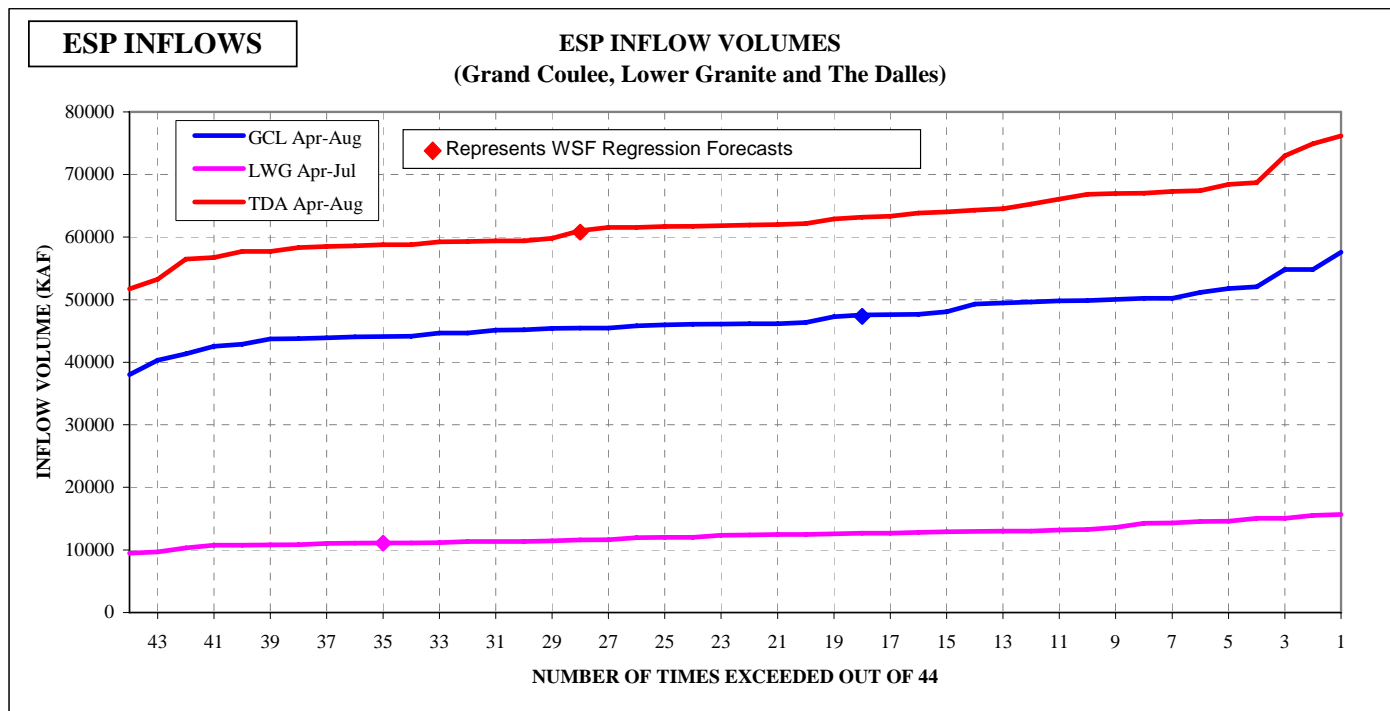
Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	Flow Objective* (kcfs)
Apr 30	0	168	220
May	7	205	220
Jun	10	190	220
Jul	3	170	200
Aug 15	0	144	200
Aug 31	0	139	200

Projects Refill by 30 June:

Month	Occurrences out of 44 Years	Average Elevation on 30 Jun for 44 Years
Libby	26	2456
Hungry Horse	44	3560
Grand Coulee	0	1285
Dworshak	44	1600

Period Average Flows (kcfs):

	FEB 1-28	MAR 1-31	APR 1-15	APR 16-30	MAY 1-31	JUN 1-30	JUL 1-31	AUG 1-15	AUG 16-31
LIB	4.0	4.0	4.0	4.0	5.0	20.8	18.3	18.6	16.6
HGH	1.0	0.9	2.1	6.0	5.4	5.1	5.5	5.6	4.4
GCL	101	91	77	100	110	118	129	110	107
PRD	111	100	87	109	127	130	134	113	110
DWR	1.6	1.6	3.6	8.7	9.9	3.8	10.1	10.1	9.2
BRN	10	11	14	14	15	12	10	12	13
LWG	21	22	39	56	78	57	32	28	27
MCN	134	123	130	168	205	190	170	144	139
TDA	140	125	134	175	200	184	167	143	139
BON	138	130	141	178	202	187	169	144	140



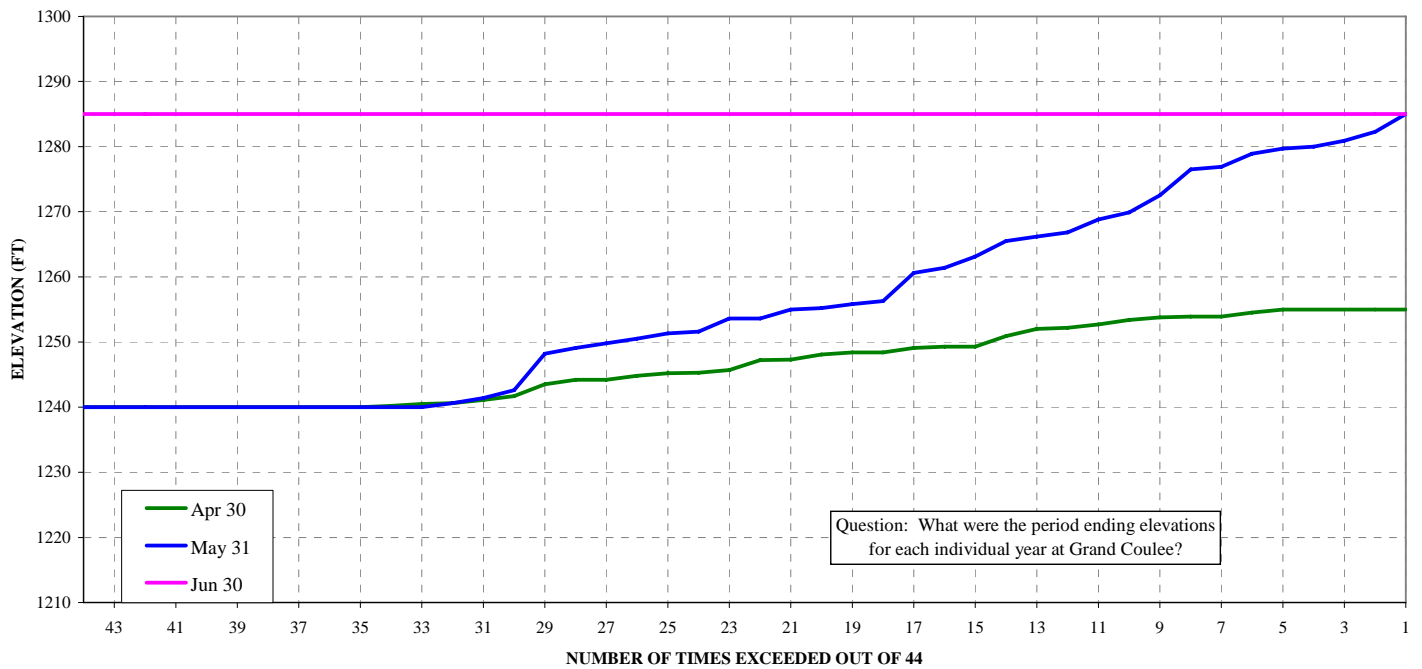
Volume Comparison Table (ESP versus Regression):

	Forecast Period	Official WSF (Regression)			ESP Volumes				
		Volume (kaf)	Percent of Average	30 year Average (kaf)	10% Exceedance Probability	30% Exceedance Probability	50% Exceedance Probability	70% Exceedance Probability	90% Exceedance Probability
Grand Coulee	Apr-Aug	47300	78%	60290	51600	49300	46100	45100	43100
Lower Granite	Apr-Jul	11100	52%	21550	14600	13000	12400	11400	10800
The Dalles	Apr-Aug	60800	65%	93090	68100	64300	61900	59400	57700
Libby *	Apr-Aug	5401	86%	6248	5760	5210	4950	4520	4200
Dworshak *	Apr-Jul	1321	50%	2645	2000	1780	1690	1630	1500

\* Corps Official Forecast

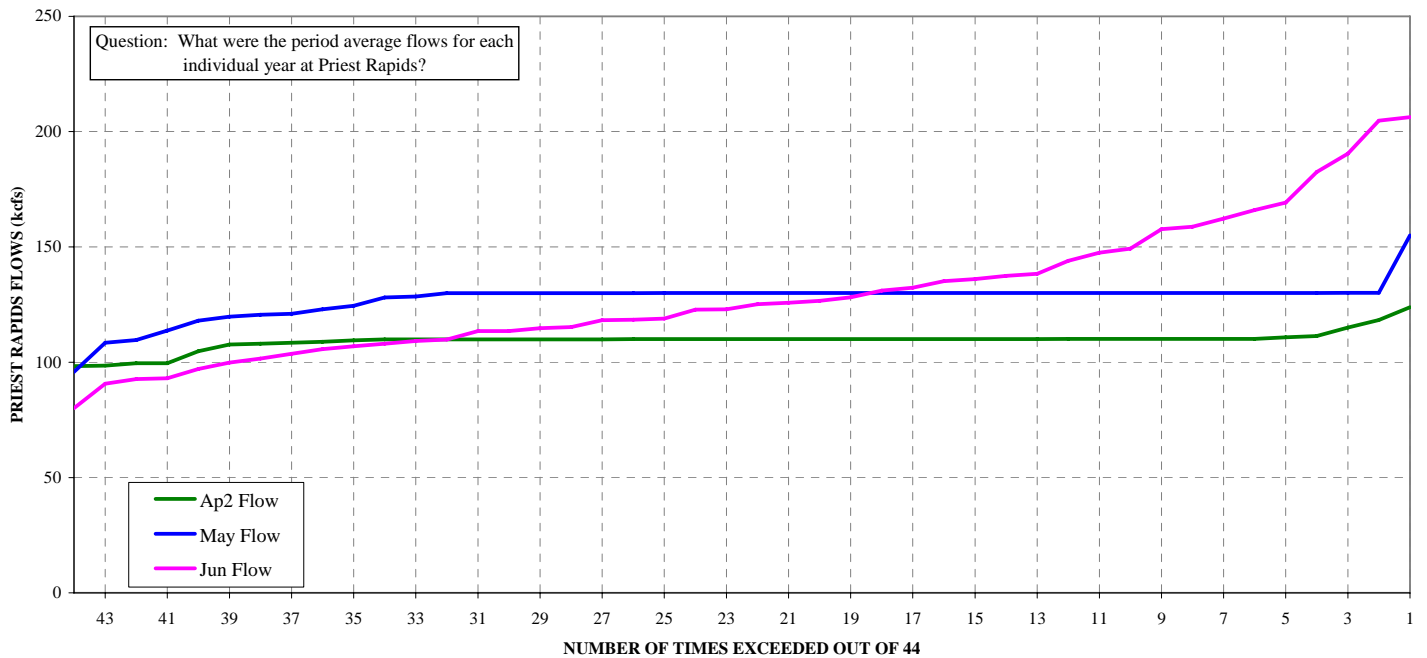
## ESP INFLOWS

### GRAND COULEE ESP LAKE ROOSEVELT ELEVATIONS



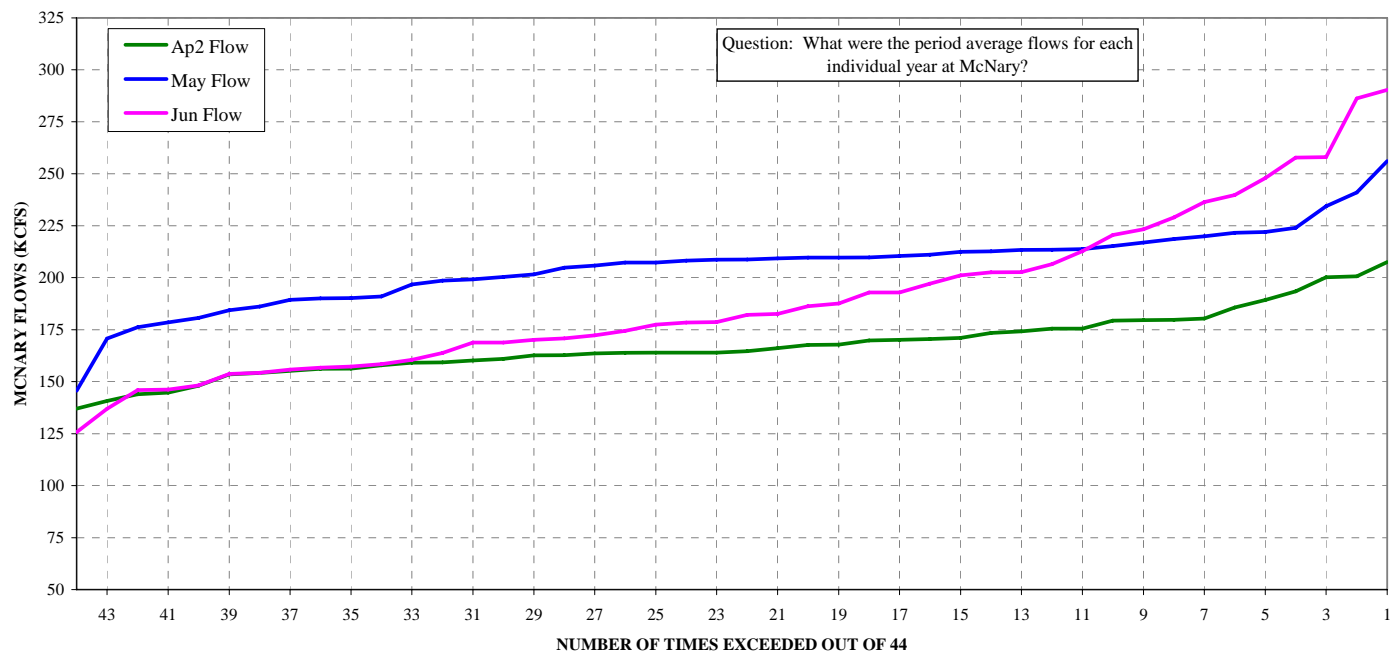
## ESP INFLOWS

### PRIEST RAPIDS ESP APRIL - JUNE FLOWS



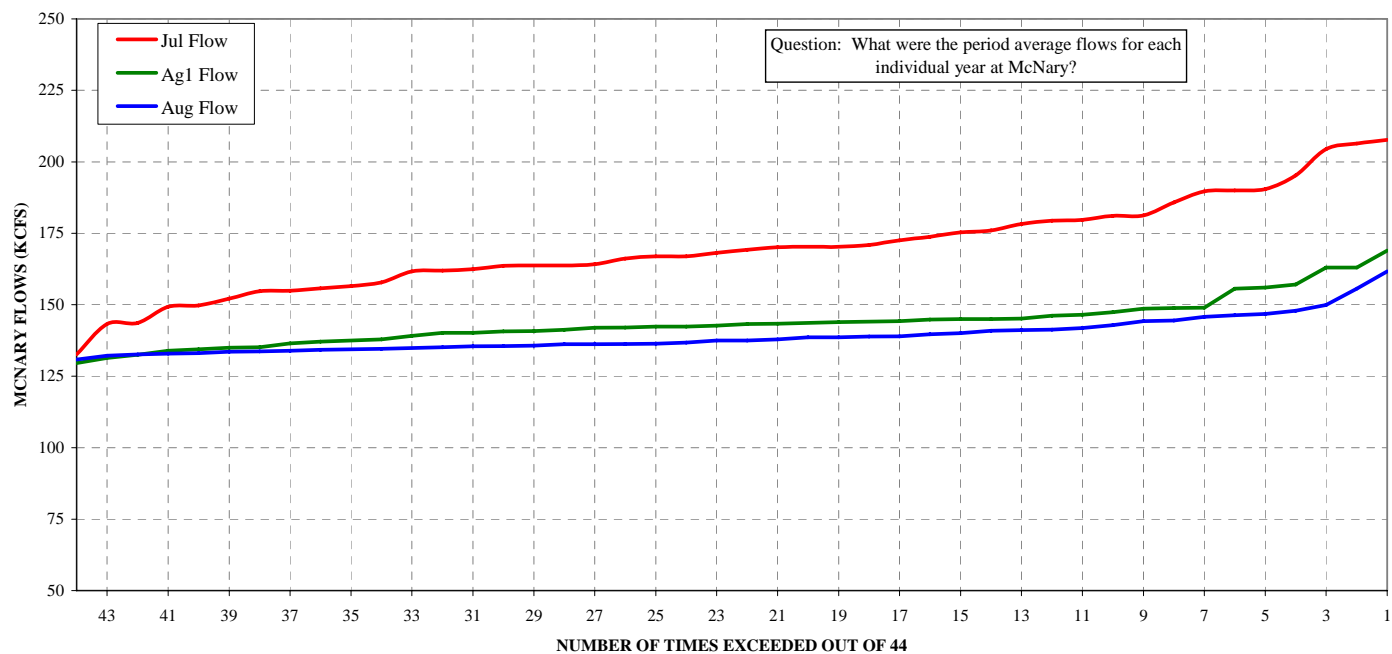
## ESP INFLOWS

## MCNARY ESP OUTFLOW APRIL - JUNE AVERAGES



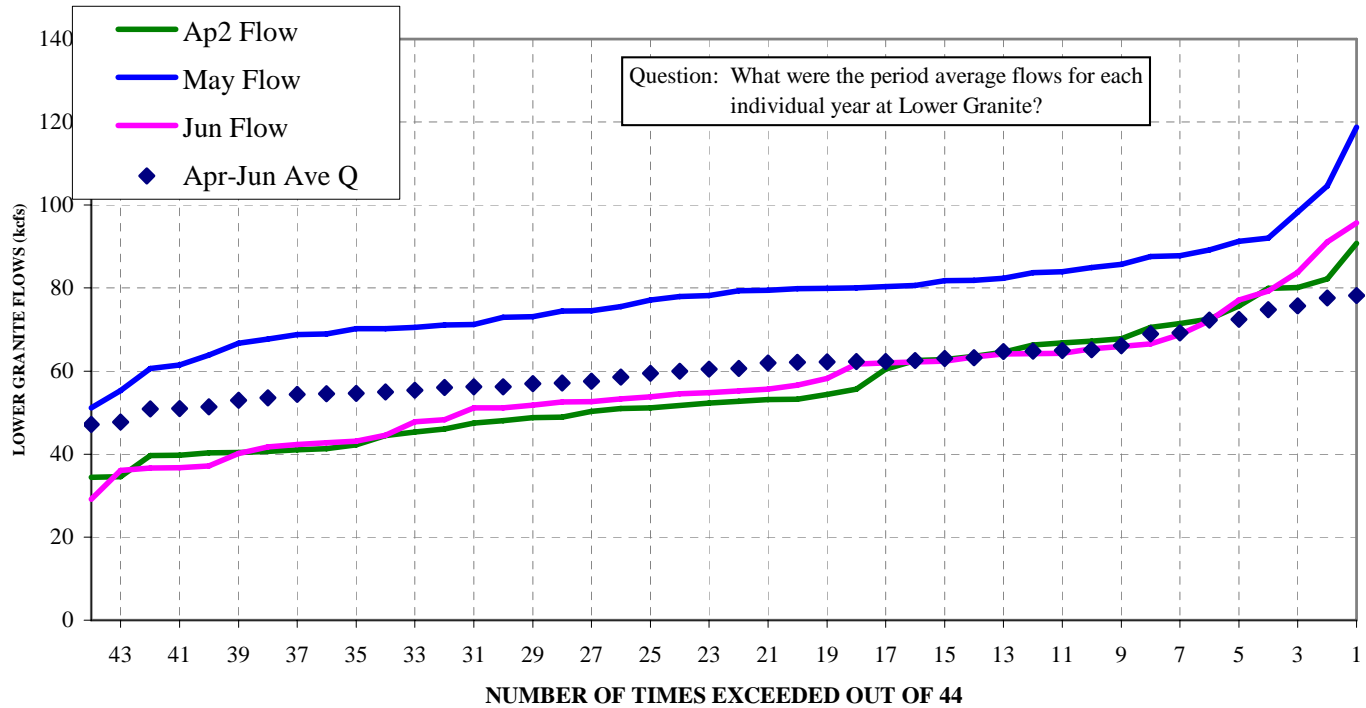
## ESP INFLOWS

## MCNARY ESP OUTFLOW JUL-AUG AVERAGES



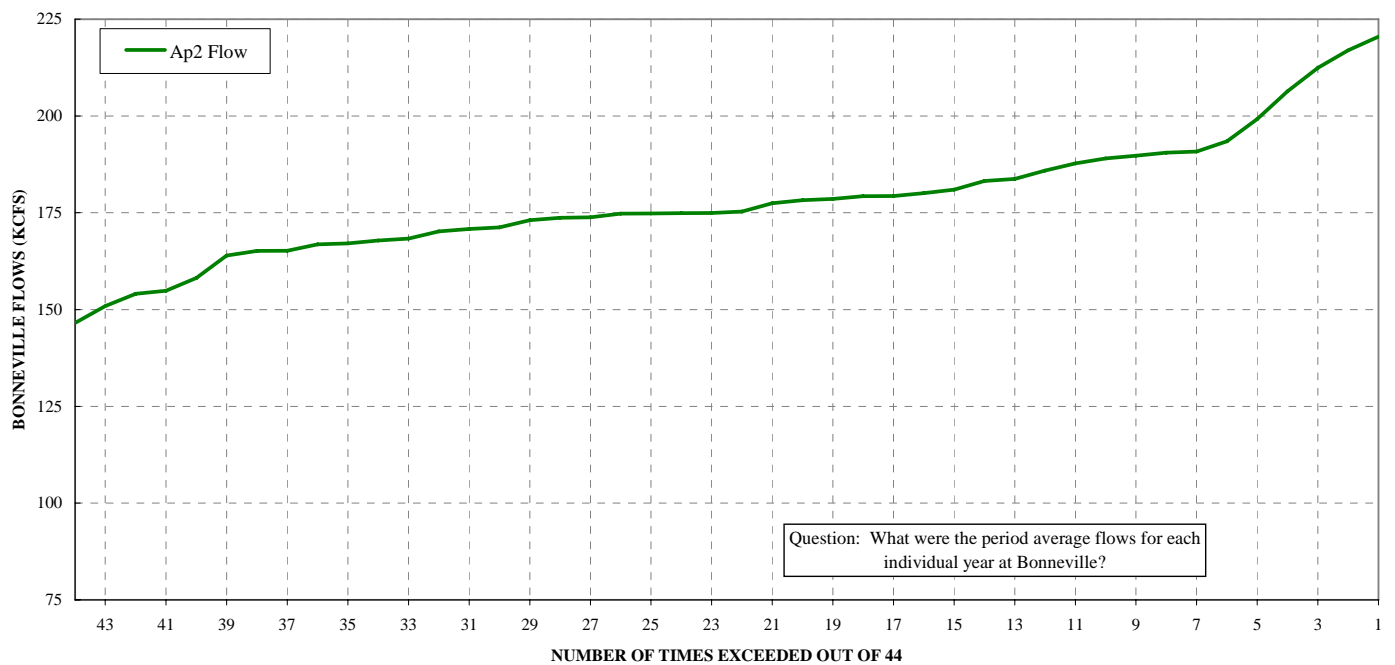
## ESP INFLOWS

### LOWER GRANITE ESP APRIL - JUNE FLOWS



## ESP INFLOWS

### BONNEVILLE ESP OUTFLOW April Flows



**ESP INFLOWS**

**DWORSHAK ESP  
OUTFLOWS**

